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Reduction of methane emissions: Russian case

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EU **METHANE** STRATEGY

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the Governance of the Energy Union, amending Directive 94/22/EC, Directive 98/70/EC, Directive 2009/31/EC, Regulation (EC) No 663/2009, Regulation (EC) No 715/2009, Directive 2009/73/EC, Council Directive 2009/119/EC, Directive 2010/31/EU, Directive 2012/27/EU, Directive 2013/30/EU and Council Directive (EU) 2015/652 and repealing Regulation (EU) No 525/2013

In accordance with the current UNFCCC greenhouse gas reporting guidelines, the calculation and reporting of methane emissions is based on global warming potentials (GWP) relating to a 100-year time horizon. Given the high GWP and relatively short atmospheric lifetime of methane, leading to a significant impact on the climate in the short and middle term, the Commission should analyse the implications for policies and measures of ***adopting a 20-year time horizon for methane****. Based on its analysis, the Commission should consider relevant policy options for rapidly addressing methane emissions through* ***a Union Methane Strategy, prioritising energy and waste-related methane emissions****.*

The Commission's analysis for the Union's longterm low emission strategy shall include:

a) the implications of various scenarios including scenarios for the EU's contribution towards the objectives set out in paragraph 1 inter alia a scenario on achieving net zero greenhouse gas emissions within the Union by 2050 and negative emissions thereafter;

b) the implications for policies and measures for methane emissions given the high global warming potential and relatively short atmospheric lifetime of this gas*. Such analysis shall inter alia take into account the circular economy objectives as appropriate,* ***with a priority on energy and waste related methane emissions****.*

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DIFFERENCES IN METHANE STRATEGY

***IPCC** recommends to use GTP 100*

CH_4 *(fossil)* = 6

?

***EU** plans to use GWP 20?*

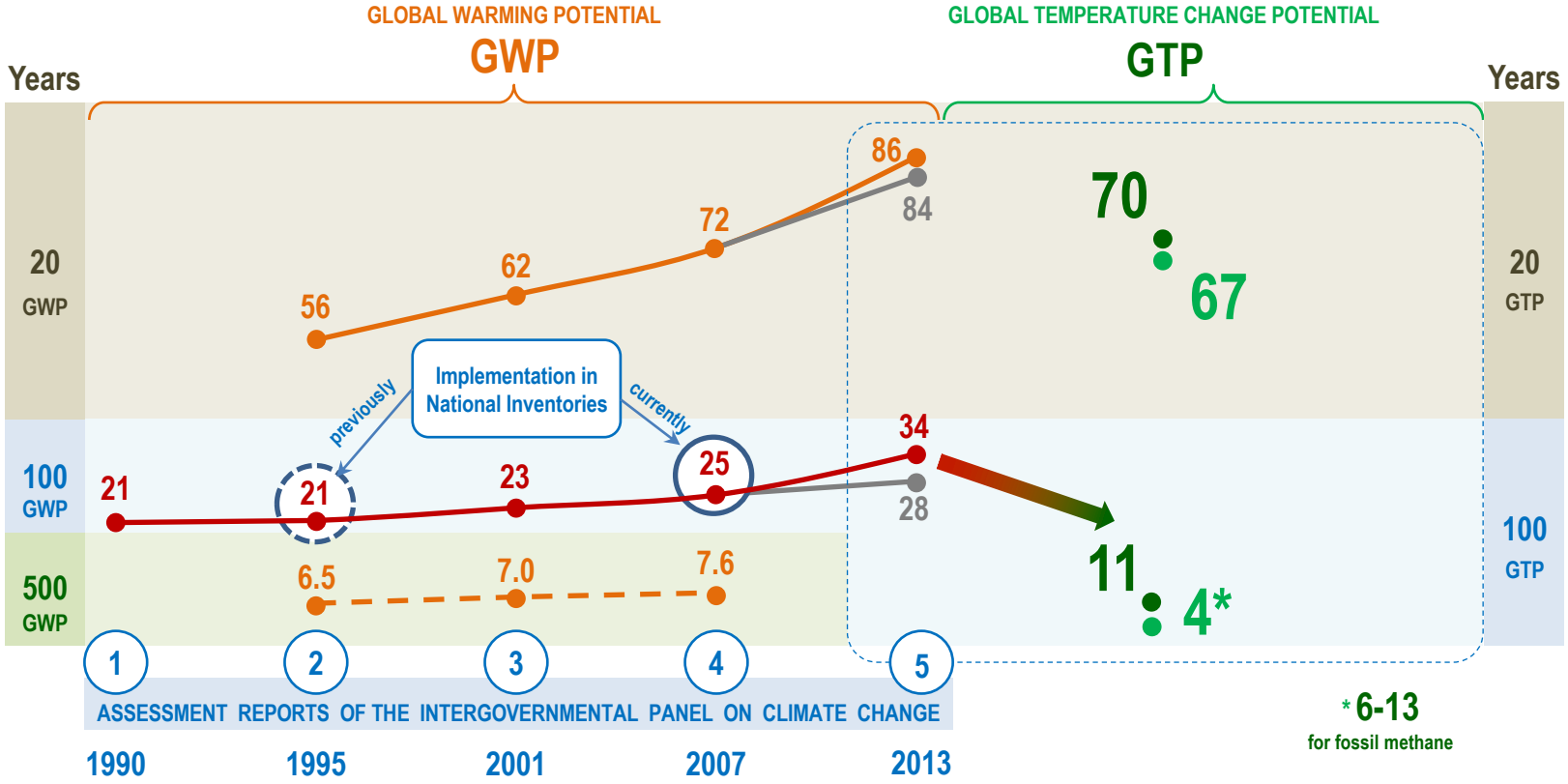
CH_4 = 86

COP19, Warsaw, 2013

GWP of CH_4 = 25 *NOW*

Source: FCCC/CP/2013/10/Add.3

GLOBAL WARMING POTENTIAL VS GLOBAL TEMPERATURE CHANGE POTENTIAL



DIFFERENT EMISSIONS METRICS

IPCC's research on the global warming effect

Various metrics can be used to compare the contributions to climate change of emissions of different substances. No single metric can accurately compare all consequences of different emissions, and all have limitations and uncertainties

Global Warming Potential GWP

on the cumulative radiative forcing over a particular time horizon

Up to 4th IPCC report , the most common metric has been the Global Warming Potential (GWP)

"the uncertainty can be as large as ±40%"

"Several studies also point out that GWP **is not well** suited for policies with a maximum temperature target" - ***like in Paris agreement***

based on

Global Temperature change Potential GTP

the change in global mean surface temperature at a chosen point in time

"There is now increasing focus on the Global Temperature change Potential"

"The GTP metric is better suited to target-based policies"

Source: 5th Assesment Report of the Intergovernmental Panel on Climate Change, 2013

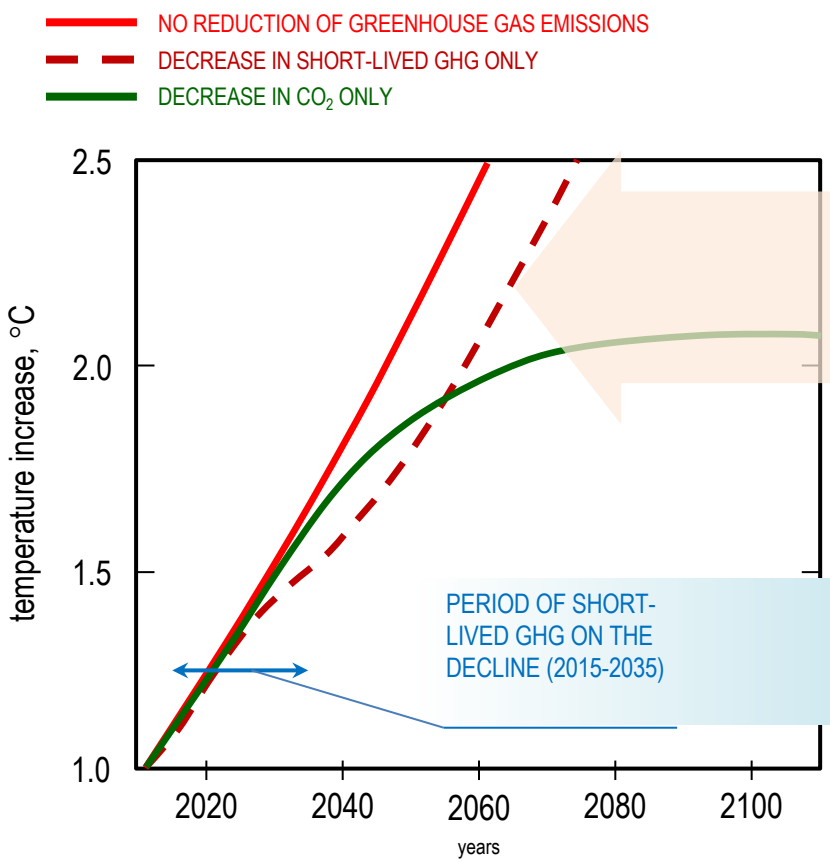
25* *values for **fossil methane** for 100 years* **6**

*(28** or 34 with ccf ***)* *(13 with with ccf ***)*

Sources: Fifth Assessment Report of the IPCC (2013)

* 4 Assessment IPCC Report (value implemented in Inventories)
** 5 Assessment IPCC Report
*** carbon-climate feedback

CONTRIBUTION OF CO_2 AND SHORT-LIVED GHG IN HOLDING THE INCREASE IN THE GLOBAL TEMPERATURE



SHORT-LIVED GREENHOUSE GASES

METHANE OZONE BLACK CARBON

FOCUS ON IMPLEMENTATION OF MEASURES FOR REDUCTION OF SHORT-LIVED GREENHOUSE GAS EMISSIONS (METHANE) **DOES NOT CHANGE** LONG-TERM TREND IN INFLUENCE OF LONG-LIVED GREENHOUSE GASES (CO_2) ON THE CLIMATE SYSTEM OF THE EARTH

IS POLITICALLY MOTIVATED TO DEMONSTRATE "EASY" AND QUICK RESULTS, SINCE:

MEASURES FOR REDUCTION OF SHORT-LIVED GREENHOUSE GAS EMISSIONS ARE LESS COSTLY AND ALLOW YOU TO SHOW A **QUICK ESTIMATED** REDUCTION IN EMISSIONS OF CO_2-eq.

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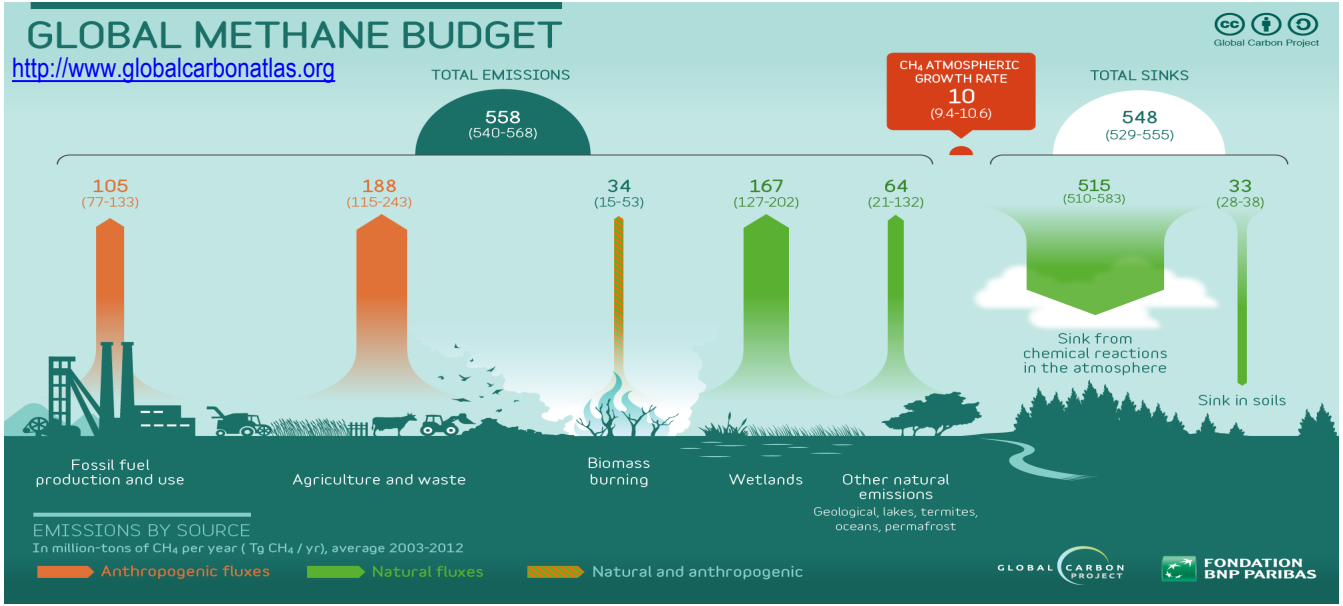
GLOBAL METHANE BUDGET (2003-2012)

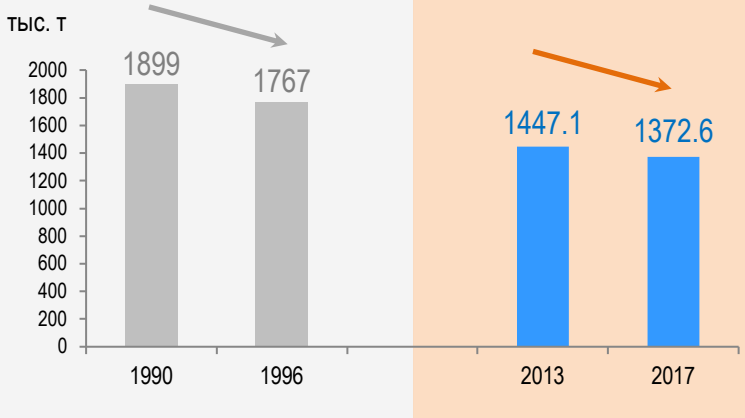


METHANE EMISSIONS IN THE EUROPEAN UNION, BCM (2012)

Source: Eurostat

VERIFICATION

GAZPROM METHANE EMISSIONS



METHANE EMISSIONS REDUCTION (in 5 years) **5.2%**

AUDIT REPORT:

- Gazprom demonstrates a high level of maturity in the GHG monitoring, reporting and management system, which provides opportunities to collect, analyze and present to interested parties objective information on greenhouse gas emissions

- the system of monitoring, reporting and management of greenhouse gas emissions meets the requirements of international carbon reporting standards

NEXT STEPS

16 March 2018

SIGNED GUIDING PRINCIPLES **«REDUCING METHANE EMISSIONS ACROSS THE NATURAL GAS VALUE CHAIN»**

EMISSIONS FACTORS FOR **GAS PRODUCTION**	IPCC – FOR **DEVELOPING** COUNTRIES	IPCC – FOR **DEVELOPED** COUNTRIES	NATIONAL FACTORS (**RUSSIA**)
(per 10^6 m^3 NG produced)			
FUGITIVIES (x 10^{-4} Gg)	3.8 – 240 (– 40 to + 250 %)	3.8 – 23 (± 100 %)	2.13 (± 50 %)
FLARING (x 10^{-7} Gg)	7.6 – 10 (± 75 %)	7.6 (± 25 %)	1.12 (± 50 %)

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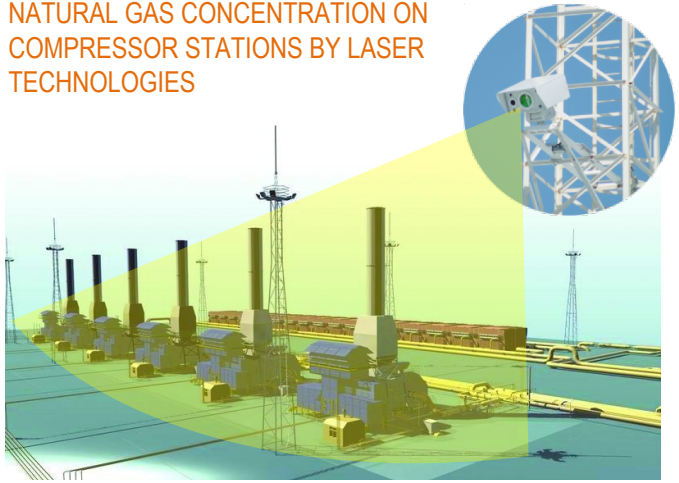
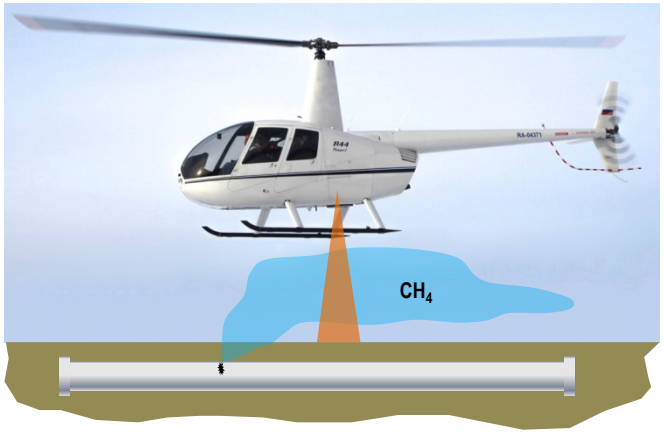
METHANE EMISSIONS DETECTION, MEASUREMENT AND ELIMINATION

CONTINUOUS MONITORING OF NATURAL GAS CONCENTRATION ON COMPRESSOR STATIONS BY LASER TECHNOLOGIES



DISTANT PERIODIC MONITORING OF METHANE EMISSIONS WITH TOTAL QUANTITATIVE ASSESSMENT



LOCALIZATION OF LEAKAGES BY PORTABLE INSTRUMENTS

INSPECTION

PERIODIC MONITORING OF NATURAL GAS EMISSIONS ON COMPRESSOR STATIONS BY HAND-HELD CONTROL DEVICES

DISCOVERED LEAKAGE ELIMINATION

- Replacement of leaky facilities
- Bandaging
- Sealing of shut-off valves

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THANK YOU FOR YOUR ATTENTION !

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METHANE EMISSIONS REGULATION IN RUSSIA

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METHANE IN RUSSIA

GREENHOUSE GAS → KPI

TOXIC GAS → FEE

CORPORATE ENVIRONMENTAL TARGET

METHANE EMISSIONS REDUCTION

PERMITTING	FEE COLLECTION	SUPERVISION
LIMITATIONS OF EMISSIONS FOR EVERY FACILITY BY STATE BODIES	5 % FEDERAL BUDGET 40 % REGIONAL BUDGET 55 % MUNICIPAL BUDGET	ENVIRONMRNTAL AND TAX AUTHORITIES (EMISSIONS MONITORING AND PAYMENT CONTROL)
Official reporting		

All methane emissions in Russia, kt

2012	2013	2014	2015	2016
3,241.3	3,382.3	3,221.8	3,302.0	3,376.2

State Environmental bulletins

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/5e901c0042cb5cc99b49bf307f2fa3f8

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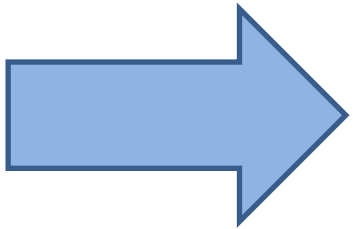
ISOTOPIC EVIDENCE

Modern methods of determining the age and the source of methane (CH_4) are based on the registration of stable **isotopes carbon-12 and carbon-13** and its natural ratio 98.92% and 1.08%

Siberian gas fields typically have isotope ratio, which would be unlikely to produce the shift observed



RUSSIAN NATURAL GAS IS NOT THE SOURCE OF METHANE GROWTH IN THE ATMOSPHERE

Isotopic studies indicate that the methane rise is a result of **increased emissions from biogenic sources**, e.g., extension of wetland and expansion in the number of methane emissions sources in agriculture: ruminants and rice fields

Taking samples: US National Oceanic and Atmospheric Administration (NOAA)
Isotopic analysis: Institute of Arctic and Alpine Research, Royal Holloway, University of London, University of Heidelberg